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**ECONOMIC COMMISSION FOR EUROPE**

**EXECUTIVE BODY FOR THE CONVENTION ON LONG-RANGE  
TRANSBOUNDARY AIR POLLUTION**

Twenty-sixth session  
Geneva, 15–18 December 2008  
Item 8 of the provisional agenda<sup>1</sup>

Working Group on Strategies and Review

Forty-second session  
Geneva, 1–5 September 2008  
Item 3 of the provisional agenda<sup>2</sup>

**NEGOTIATIONS ON FURTHER OBLIGATIONS TO REDUCE EMISSIONS FOLLOWING  
REVIEW OF THE 1999  
GOTHENBURG PROTOCOL<sup>3</sup>**

**DRAFT PLAN FOR THE REVISION OF THE GOTHENBURG PROTOCOL**

Note by the secretariat

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<sup>1</sup> ECE/EB.AIR/95.

<sup>2</sup> ECE/EB.AIR/WG.5/91.

<sup>3</sup> The 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone.

1. At its twenty-fifth session in December 2007, the Executive Body decided to mandate the Working Group on Strategies and Review to commence, in 2008, negotiations on further obligations to reduce emissions, with the aim of presenting the outcome of this work to the twenty-seventh session of the Executive Body in December 2009 (ECE/EB.AIR/91, para. 63 (a)). The Executive Body invited the secretariat to prepare a draft plan for submission to the forty-first session of the Working Group on all the work that might be associated with future negotiations (ECE/EB.AIR/91, para. 64 (g)). This note is a revised version of the draft plan for the work to be undertaken up to the forty-fifth session of the Working Group in September 2009, which was presented at the forty-first session of the Working Group (ECE/EB.AIR/WG.5/2008/5) and further discussed at the forty-second session in September 2008.

2. This note is set out in six chapters. Chapter I covers issues highlighted by the review of the Gothenburg Protocol. Chapter II outlines the work necessary for the revision of emission ceilings. Chapters III and IV detail the major work requirements for revision of annexes and guidance documents. Chapter V addresses the need to explore options for a possible new structure for the Protocol. Chapter VI notes the timetable and the main outputs, presented in a table format in the annex. For each item, the responsible subsidiary body, task force or expert group, as well as the deadline for its completion, are indicated. The Working Group will be expected to review progress on all items.

## **I. ISSUES HIGHLIGHTED BY THE REVIEW OF THE PROTOCOL**

3. Based on the review of the Protocol, the Executive Body agreed that, to enable a cost-effective outcome, any revision or new protocol should take into account new scientific knowledge about primary particulate matter (PM) and PM precursors, the hemispheric transport of air pollution, the potential synergies and trade-offs with climate change and the nitrogen cycle. In addition, increased emissions from sources and sectors not effectively addressed by the current Gothenburg Protocol should be recognized (e.g. shipping emissions).

4. The Executive Body agreed that future discussions on PM should take into account the conclusions and recommendations of the Expert Group on PM. The Executive Body invited the lead countries of the Expert Group on PM, Germany and the United Kingdom: (a) to explore, from a policy perspective, options for addressing PM under the Convention; (b) to propose options that could be further explored by the Expert Group; and (c) to report to the forty-first session of the Working Group on Strategies and Review.

5. Further work is necessary to explore ways to address the hemispheric aspects of pollutants transport and the role of methane and carbon monoxide on ozone formation, as well as aerosol dispersion.
6. To ensure adequate accounting of synergies and trade-offs with climate change, new analysis tools, such as models specific to geographic regions or regional circumstances, should be developed as needed. For example, for the geographic scope of EMEP<sup>4</sup>, the possibility of setting additional non-binding, long-term aspirational goals for the pollutants covered by the Protocol should also be investigated.
7. The Task Force on Reactive Nitrogen was established by the Executive Body to address the need for a more integrated approach to understand and control the emissions of nitrogen. Consideration of the full cycle of reactive nitrogen will also have implications for integrated assessment modelling. Further work related to ammonia emissions from agriculture is still needed.
8. It is crucial that a future protocol take into account the needs of non-Parties to the Protocol related to air pollution problems of a transboundary nature. The Working Group on Strategies and Review should explore the willingness of non-Parties to apply binding emission reduction measures, and should consider a greater flexibility in the annexes in the revision process.

## II. REVISION OF EMISSION CEILINGS

9. One of the major tasks related to the revision of the Gothenburg Protocol is to the revision the emission ceilings set out in its annex II. At its twenty-fifth session, the Executive Body decided that any revision or new protocol should consider setting new environmental targets for the current decade or longer (e.g. to 2020). The effects targets, including aspirational ones for 2050, should be based on the accumulated knowledge of the Working Group on Effects, quantified as impacts on specified sensitive ecosystems and health in given emission scenarios. Most of this work will be carried out by the Task Force on Integrated Assessment Modelling and the Centre for Integrated Assessment Modelling (CIAM), in collaboration with the Working Group on Effects, with inputs from countries (emission data and projections) as well as from the Meteorological Synthesizing Centre-West (MSC-West) and other task forces and expert groups.

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<sup>4</sup> The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

10. At its twenty-fifth session, the Executive Body also recommended that work on the revision of the Protocol take into account modelled, optimized scenarios covering the whole geographic scope of EMEP without excluding the development of differentiated approaches for different UNECE subregions. In view of this, the Working Group on Strategies and Review is expected to consider options for initial scenarios at its forty-second session, taking into consideration the issues of climate change and nitrogen, the obligations of non-European Union (EU) countries and 2050 targets. CIAM presented technical options for specific measures with high potential for emission reductions in the Eastern Europe, Caucasus and Central Asia (EECCA) subregion at the Working Group's forty-first session, as a basis for further discussion on how to integrate these into a future protocol.

11. Projections for the current legislation scenario, implying implementation of the Protocol and the maximum feasible reductions scenario for non-EU countries were calculated and presented by the Task Force on Integrated Assessment Modelling and CIAM to the forty-second session of the Working Group on Strategies and Review in September 2008. These data should be reviewed by the countries and eventually replaced by national submissions in early 2009, but not later than 31 May, and then be presented to the meeting of the Task Force on Integrated Assessment Modelling in June 2009. After endorsement of the consolidated baseline scenario, CIAM would then (a) proceed with exploring various ambition levels for environmental and health targets and abatement options, (b) analyse the sensitivity of optimized ceilings for baseline assumptions, and (c) present the results to the twenty-seventh session of the Executive Body. A second round of scenarios set by the Executive Body should be presented by the Task Force and CIAM to the Working Group in 2010. The Working Group could then select a scenario for negotiation. Emission ceilings for 2020 should be finally agreed at the Working Group's forty-sixth session.

### **III. REVISION OF GUIDANCE DOCUMENTS**

12. The Gothenburg Protocol makes reference to the following guidance documents, which were adopted by the Executive Body when it adopted the Protocol: (a) Guidance document on control techniques for emissions of sulphur from stationary sources; (b) Guidance document on control techniques for emissions of nitrogen from stationary sources; (c) Guidance document on control techniques for emissions of volatile organic compounds (VOCs) from stationary sources; (d) Guidance document on control techniques for selected mobile sources; (e) Guidance document on control techniques for preventing and abating emissions of ammonia; and (f) Guidance document on economic instruments to reduce nitrogen oxides, sulphur, VOCs and ammonia. The revision of the Gothenburg Protocol implies assessing the need to revise these guidance documents.

13. The guidance document on ammonia was revised by the former Expert Group on Ammonia Abatement and was adopted by the Executive Body at its twenty-fifth session. The Executive Body invited the Expert Group on Techno-economic Issues to initiate work for a possible revision of the Protocol and its annexes, including through revising the guidance documents on sulphur, nitrogen oxides (NO<sub>x</sub>) and VOCs, and adding PM to them.

14. The Expert Group on Techno-economic Issues could cooperate with the Expert Group on PM and the Task Force on Heavy Metals to update the guidance documents on stationary sources for PM. The Network of Experts on Benefits and Economic Instruments could undertake work on updating the guidance document on economic instruments. All the revised documents need to be finalized in time for the forty-fourth session of the Working Group on Strategies and Review (see annex).

#### **IV. REVISION OF ANNEXES TO THE PROTOCOL**

15. The Gothenburg Protocol is the most complex protocol under the Convention, not only due to its multi-pollutant and multi-control approach, but also due to the complexity and technical detail of its annexes. Its annexes set emission limit values for various pollutants and sectors as well as for mobile sources.

16. The number of limit values currently contained in the annexes is over 200. Annexes IV, V and VI specify limit values for sulphur, NO<sub>x</sub> and VOCs for stationary sources. Annex VIII sets limit values for mobile sources. Some of the annexes, for example table IV of annex V which lists limit values for NO<sub>x</sub> emissions for new stationary engines, have proved problematic for Parties. The Expert Group on Techno-economic Issues has evaluated the limit values in annexes IV, V and VIII and made specific suggestions for amendment. It has pointed out some differences between the annexes and EU legislation that could be addressed in the revised annexes.

17. In addition to revising annex VI, preparatory technical work is needed to address the requirement in article 3, paragraph 7, of the Protocol to consider limit values for the VOCs content of products not included in annex VI or VIII, with a view to adopting an annex.

18. The Expert Group on Techno-economic Issues will also be asked to draft an annex on limit values for emissions of PM (PM<sub>2.5</sub> and PM<sub>10</sub>) from stationary sources.

19. The revised annexes should be presented to the forty-fourth session of the Working Group on Strategies and Review in April 2009. All the annexes and guidance documents should be finally negotiated and agreed at the forty-fifth session of the Working Group in September 2009.

## **V. OPTIONS FOR A NEW STRUCTURE OF THE PROTOCOL**

20. The review of the Gothenburg Protocol has pointed out that Parties may wish to give special attention to the problems of the level of detail of the technical annexes (ECE/EB.AIR/2007/10, para. 48). Some Parties to the Convention have indicated that, while they were able to meet the overall emission ceilings in annex II, they were having trouble ratifying the Protocol because of the level of detail in some of the annexes. Some delegations have suggested that simpler annexes and/or more flexible approaches to applying their provisions (e.g. through relaxed timescales for some countries) might encourage broader implementation of the Protocol. The Bureau of the Working Group on Effects has proposed draft guidelines for reporting monitoring and modelling of air pollution effects, which could encourage a reconsideration of the Protocol's emphasis on effects-oriented work, thereby ensuring that effectiveness of emission reductions is sufficiently addressed.

21. At its twenty-fifth session, the Executive Body, agreed that any revision or new protocol should consider building more flexibility into some of the current and new annexes and obligations, e.g. with respect to timescales for the implementation of obligations. This could imply revision of annex VII, which sets out the timescales for implementation under article 3 of the Protocol. The issue should be considered by the Working Group on Strategies and Review, as appropriate.

## **VI. TIMETABLE AND OUTPUTS**

22. The annex below presents the timetable for delivering the main outputs of the work on the revision of the Gothenburg Protocol.

**Annex**

**TIMETABLE FOR THE DELIVERY OF THE MAIN OUTPUTS FOR THE  
 REVISION OF THE GOTHENBURG PROTOCOL**

<b>Item/task</b>	<b>Group/body</b>	<b>Deadline for completion</b>
<b>Revision of annexes *</b>		
Annexes setting emission limit values for stationary sources for sulphur dioxide (SO <sub>2</sub> ), NO <sub>x</sub> , VOCs and PM	Expert Group on Techno-economic Issues (for PM in cooperation with the Expert Group on PM and the Task Force on Heavy Metals)	Working Group on Strategies and Review, 44 <sup>th</sup> session (WGSR44) (April 2009)
Annexes setting emission limit values for mobile sources for SO <sub>2</sub> , NO <sub>x</sub> , VOCs and PM and VOCs in products	Expert Group on Techno-economic Issues	WGSR44 (April 2009)
Annex on ammonia	Task Force on Reactive Nitrogen	WGSR45 (September 2009)
Annex on the timescales for the implementation of technical measures (including for countries with economies in transition)	Working Group on Strategies and Review	WGSR45 (September 2009)
Final negotiation of annexes *	Working Group on Strategies and Review	WGSR45 (September 2009)
<b>Revision of Guidance documents *</b>		
Guidance documents on SO <sub>2</sub> , NO <sub>x</sub> , VOCs and PM for stationary sources	Expert Group on Techno-economic Issues	WGSR45 (September 2009)
Guidance document for selected mobile sources	Expert Group on Techno-economic Issues	WGSR45 (September 2009)
Guidance document on ammonia		Completed (adopted by the Executive Body in December 2007)
Guidance document on economic instruments	Network of Experts on Benefits and Economic Instruments	WGSR45 (September 2009)
Final negotiation of guidance documents *	Working Group on Strategies and Review	WGSR45 (September 2009)

\* Expert Group on Techno-economic Issues and the Network of Experts on Benefits and Economic Instruments will report required information to the Working Group on Strategies and Review which will then undertake the possible revision of the technical annexes and guidance documents as required by the Parties meeting within the Executive Body session.

<b>Item/task</b>	<b>Group/body</b>	<b>Deadline for completion</b>
<b>Revision of emission ceilings</b>		
Technical options for specific measures with a high potential of emission reductions in the EECCA subregion	CIAM	WGRS41 (April 2008)
Discussion on initial scenarios (including discussions on climate change, nitrogen, obligations of non-EU countries, emissions from shipping and 2050 targets)	Working Group on Strategies and Review, Working Group on Effects	WGRS41 (April 2008), Working Group on Effects 27 <sup>th</sup> session (WGE27) (September 2008)
Source-receptor matrices extended to all of EMEP	MSC-West	August 2008
Results of the 2007/2008 call for data on critical loads and dynamic modelling	Working Group on Effects	WGE27 (September 2008)
Calculation ceilings for current legislation, implications of the Protocol and maximum feasible reductions non-EU countries*	Task Force on Integrated Assessment Modelling, CIAM	WGRS42 (September 2008)
Submission of data by non-EU countries	Non-EU countries and CIAM	September 2008 (validated by CIAM in October 2008)
Informal document on legal aspects of options on revising the protocol	Ad hoc group of legal experts	Executive Body 26th session (December 2008), WGRS43 (March 2009)
Meeting of bilateral projects and a tutorial session on the GAINS model (tentative)	Task Force on Integrated Assessment Modelling, CIAM, EECCA/South-East European countries	February 2009
Aspirational non-binding targets for 2050	Task Force on Integrated Assessment Modelling, CIAM, Working Group on Effects	February 2009
Updated national baseline projections (including climate policy)	All Parties (to submit data), Task Force on Integrated Assessment Modelling (presentation of data), CIAM (baseline analysis)	31 May 2009, June 2009, WGRS45 (September 2009)

\* No optimization, just calculation of national emissions on the basis of countries activities.



<b>Item/task</b>	<b>Group/body</b>	<b>Deadline for completion</b>
<b>Revision of emission ceilings</b>		
Analyses for various ambition levels	Task Force on Integrated Assessment Modelling, CIAM, Working Group on Effects	WGE27 (September 2009), November 2009
Presentation of second round of scenarios	Task Force on Integrated Assessment Modelling, CIAM	WGSR46 (April 2010)
Selection of a scenario for negotiation	Working Group on Strategies and Review	WGSR46 (April 2010)
Attainment of environmental and health targets	Working Group on Effects	WGE27 (September 2010)
Agreement on emission ceilings for 2020 (revised annex II)	Working Group on Strategies and Review	WGSR47 (September 2010)

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